

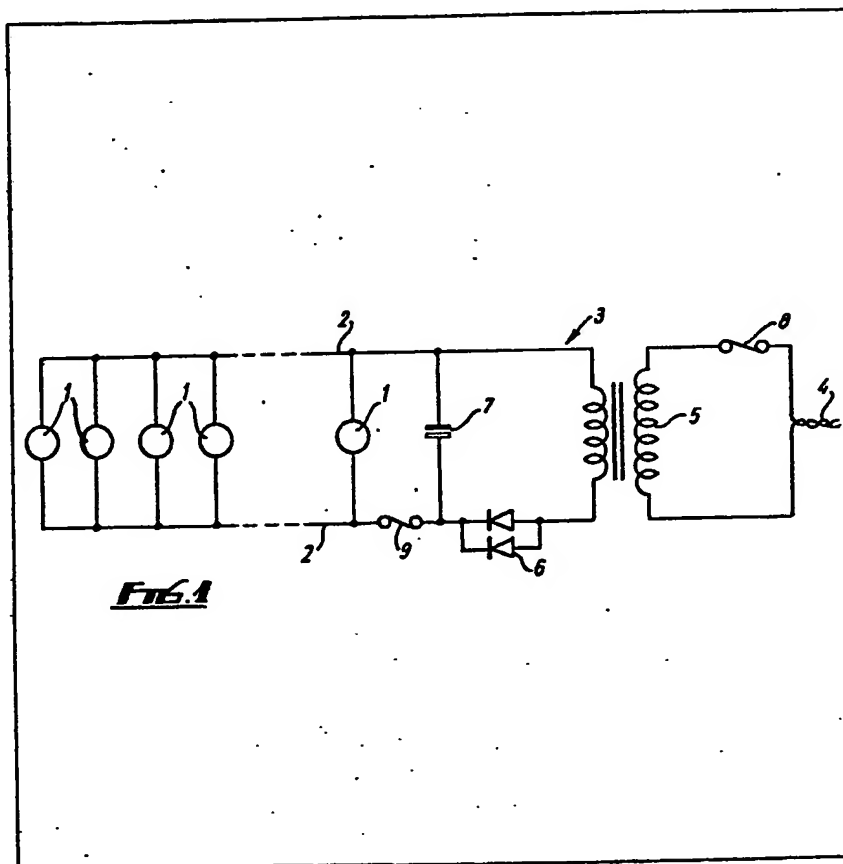
(12) UK Patent Application (19) GB (11) 2 045 415 A

(21) Application No 8006057
(22) Date of filing 22 Feb 1980
(30) Priority data
(31) 79/06229
(32) 22 Feb 1979
(33) United Kingdom (GB)
(43) Application published
29 Oct 1980
(51) INT CL.³
F21S 1/14
(52) Domestic classification
F4R 336 414 41Y 80X S
(56) Documents cited
GB 1510687
GB 1425984
GB 1257288
GB 1166580
(58) Field of search
F4R
(71) Applicant
Richard Johnson, 27 Alice
Street, Sale, Manchester,
M33 3HN
(72) Inventor
Richard Johnson
(74) Agents
Sydney E. M'Caw & Co.

(54) **Decorative lighting system**

(57) A decorative flashing light display, for example, for use on a Christmas tree, is obtained with

parallel connected electrical lamps. Each lamp (1) is provided with a respective flashing device and this may be achieved by using lamps which incorporate bimetallic strip make-and-break contacts.



The drawings originally filed were informal and the print here reproduced is taken from a later filed formal copy.

GB 2 045 415 A

1/1

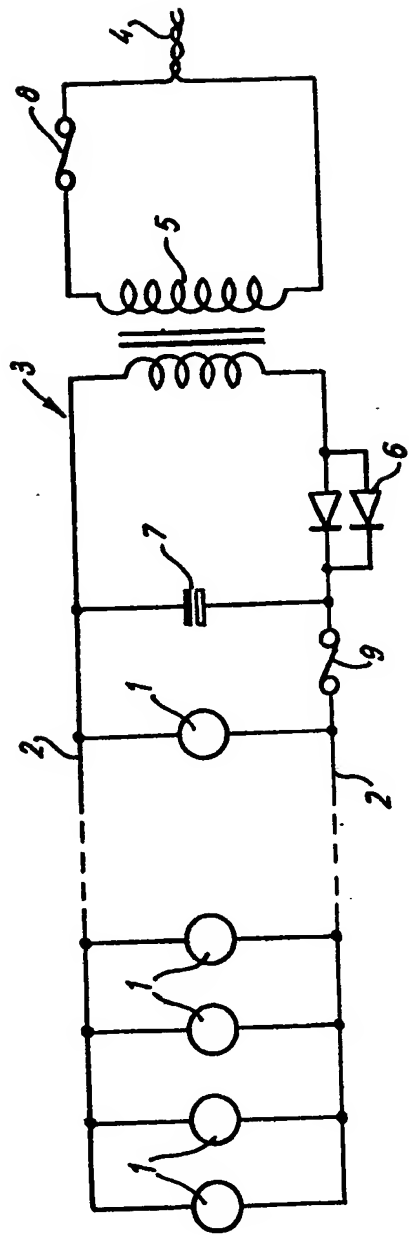


FIG. 1

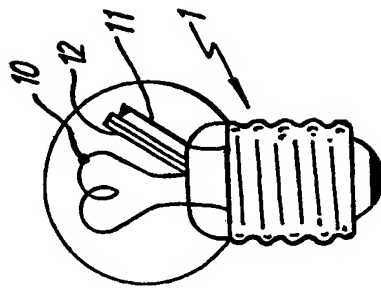


FIG. 2

SPECIFICATION

Decorative lighting system

This invention relates to a decorative lighting system such as may be used for example on a domestic Christmas tree.

A known Christmas tree decorative lighting system comprises a plurality of small electrical filament lamps which are connected in series and are operated from a.c. mains supply. The lamps may be arranged to provide steady light sources or, alternatively, a suitable flashing device may be connected in series with the lamps so that, in use, all lamps are together switched repeatedly on and off.

An object of the present invention is to provide a multi-light decorative lighting system with which, in a simple and inexpensive manner, it is possible to obtain a decorative light display which is of a more varied and interesting light display than that which can be obtained with the aforesaid known arrangements.

According to the invention therefore there is provided a decorative lighting system comprising a plurality of electrical lamps arranged to be connected to a power supply to be operated thereby, characterised in that said lamps are connected in parallel and each said lamp has associated therewith a respective flashing device.

With this arrangement it will be appreciated that the lamps can be caused to flash independently whereby it is possible for a particularly interesting and varied lighting display to be achieved in a simple and inexpensive manner.

Most preferably, each lamp integrally incorporates the respective flashing device, such lamp being formed for example as a filament lamp with a bimetallic make-and-break switch device therein.

The said lamps are preferably connected directly in parallel with each other; although if desired each said lamp may have an auxiliary electric circuit element or elements connected in series therewith to modify or supplement the effect of the pertaining lamp, the or each such element comprising for example, a further lamp, a resistor or the like.

Preferably the said flashing devices or some of them are arranged to produce different flashing rates. In the case where bimetallic lamps are used such different rates can be obtained as a consequence of differences arising from manufacturing tolerances and/or operational conditions of the lamps.

The said lamps are preferably of a low voltage (say 5v) and, in the case where a.c. mains is to be used as a power source, a voltage-dropping transformer may be provided. The lamps may be operated from an a.c. or d.c. supply and in the latter case this may be obtained from an a.c. source using a rectifier.

The invention will now be described further by way of example only and with reference to the

65 accompanying drawings in which:—

Fig. 1 is a circuit diagram of one form of lighting system according to the invention; and

Fig. 2 is a diagrammatic representation of one of the lamps of the system of Fig. 1.

The lighting system is for use as a decorative light display for a domestic Christmas tree and comprises a plurality of small electric lamps 1 which are connected in parallel at spaced positions between twin-insulated wires 2, such wires 2 being sufficiently long and flexible to permit appropriate distribution of the lamps around the Christmas tree.

The wires 2 are connected to a d.c. power supply circuit 3 which is connected to a.c. main supply via an insulated flex 4. The power supply circuit 3 comprises a voltage-dropping transformer 5 which drops the voltage from 240v a.c. to 6v a.c., a rectifier 6 (say two BY127 diodes), a smoothing capacitor 7 (say 1000 μ F 63v working), and 1a and 5a fuses 8, 9, respectively on the input and output sides of the circuit 3. The circuit 3 so far described is suitable for powering up to 10 lamps each of 5v 0.45a rating. If a greater number of lamps and/or lamps of a greater power consumption are to be used, then an appropriately up-rated power circuit 3 will be required.

As shown in Fig. 2, each lamp 1 is a small bulb of conventional form containing a filament 10 and in series therewith a set of make-and-break contacts defined by a fixed contact 11 and a bimetallic strip 12. The bulb may have a base fitting of MES (miniature edison screw) or other kind and connection is made to the wires 2 via a suitable insulated holder (not shown).

In use, when the main supply is first applied to the power circuit 3, all lamps 1 are illuminated. The bimetallic strip 12 of each lamp 1 is thereby heated and then bends away from the respective contact 11, due to differential thermal expansion of the metals of the strip, whereupon the lamp switches off. The strip 12 then cools and moves back to re-engage the contact 11 so that the lamp 1 is again operated. This cycle is repeated giving rise to a flashing light. The rate of flashing tends to be different for each lamp 1 due to differences in manufacturing tolerances and operating conditions of the different lamps. Also, the rate for each lamp tends to fluctuate in use. Accordingly, the different lamps flash at randomly different rates thereby giving a particularly pleasing and interesting light display. It will also be appreciated that the random flashing effect is obtained in a particularly simple and inexpensive manner and without using complicated circuitry. Further, the lamps are operated at a safe low voltage, and a good level of illumination can be achieved with a low power consumption because not all lamps operate simultaneously after the initial start-up period.

The lamps 1 may be provided with shades or the like as desired.

It is of course to be understood that the

invention is not intended to be restricted to the details of the above embodiment which are described by way of example only. In particular, whilst reference is made to the use of the lighting system as a Christmas tree decoration it is to be appreciated that the system may be used for any other suitable purpose.

Further, lamp arrangements other than that specifically illustrated are possible. For example, the lamps 1 may each have a further lamp or lamps in series therewith, and/or there may be a plurality of sets of said parallel lamps 1, such sets being in parallel with each other.

CLAIMS

1. A decorative lighting system comprising a plurality of electrical lamps arranged to be connected to a power supply to be operated thereby, characterised in that said lamps are connected in parallel and each said lamp has associated therewith a respective flashing device.
2. A system according to claim 1, wherein each lamp integrally incorporates the respective

flashing device.

3. A system according to claim 2, wherein each lamp with the integral flashing device is defined by a filament lamp having a bimetallic switch device therein.

4. A system according to claim 3, wherein the switch device comprises a bimetallic strip which moves away from an electrical contact thereby to switch off the lamp as the strip is heated by the filament of the lamp.

5. A system according to any one of claims 1 to 4, wherein the lamps are connected directly in parallel with each other.

6. A system according to any one of claims 1 to 5, further including a voltage dropping transformer for connection to an a.c. supply to provide a low voltage power source for the lamps.

7. A system according to any one of claims 1 to 6, further including a rectifier for connection to an a.c. supply to provide a d.c. power source for the lamps.

8. A decorative lighting system substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.